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EXAMINER

GREENE, JASON M

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 02/26/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/965,089

Applicant(s)

BEST ET AL.

Examiner

Jason M. Greene

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☒ Claim(s) 23,24 and 27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on 29 September 2000. It is noted, however, that applicant has not filed a certified copy of the 200 16 803.7 application as required by 35 U.S.C. 119(b).

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(u)(2) because the view numbers are not larger than the numbers used for reference characters. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in

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upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

4. Applicant is reminded that while reference to elements of figures is allowed in the claims, the claims must be able to stand independent of the figures.

5. Claim 23 is objected to under 37 CFR 1.75(b) as being a duplicate of claim 2.

Claim 23 is an independent claim reciting the limitations of independent claim 1 and

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dependent claim 2. However, since a dependent claim includes all of the limitations of the claims from which it depends, claim 2 is seen as reciting the same limitations as claim 23.

6. Claim 24 is objected to under 37 CFR 1.75(b) as being a duplicate of claim 3. Claim 24 is an independent claim reciting the limitations of independent claim 1 and dependent claim 3. However, since a dependent claim includes all of the limitations of the claims from which it depends, claim 3 is seen as reciting the same limitations as claim 24.

7. Claim 27 is objected to under 37 CFR 1.75(b) as being a duplicate of claim 16. Claim 27 is an independent claim reciting the limitations of independent claim 1 and dependent claim 16. However, since a dependent claim includes all of the limitations of the claims from which it depends, claim 16 is seen as reciting the same limitations as claim 27.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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9. Claims 2-8, 12, 15, 18, and 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-4, 6, 8, 12, 15, and 23-25 recite the limitation "the first filter element(s)" in lines 1, 1, 1, 3, 3, 2, 2, 8, 8, and 9, respectively. There is insufficient antecedent basis for this limitation in the claims. For Examination purposes, the phrase "the first filter element(s)" has been interpreted to mean the filter elements that have the electrical terminals connected thereto.

Claims 4-8 and 15 recite the limitation "the second filter element(s)" in lines 2, 1, 1, 1, 2, and 2, respectively. There is insufficient antecedent basis for this limitation in the claims. For Examination purposes, the phrase "the second filter element(s)" has been interpreted to mean the filter elements that do not have electrical terminals connected thereto.

Claims 2 and 23 recite the limitation "the center" in lines 2 and 9, respectively. There is insufficient antecedent basis for this limitation in the claims.

Claim 18 recites the limitation "the outer walls" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 22, 25, and 26 recite the limitation "the contact layers" in lines 2, 9, and 8, respectively. There is insufficient antecedent basis for this limitation in the claims.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 18 recites the broad recitation "wherein the outer walls of the filter element are of particle-tight... configuration", and the claim also recites "in particular gas-tight configuration" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

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10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 3, 5, 6, 9-17, 22, and 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Lipp et al. '541.

With regard to claim 1, Lipp et al. '541 discloses a filter device having filter elements (72,74,76) made of ceramic material which are combined into a filter element group in which the filter elements lie side by side next to one another and can be flowed through in parallel, wherein only some of the filter elements (72) of the filter element group have electrical terminals (22) for connection with an electrical energy source (24), and at least those filter elements (72) are made of electrically conductive ceramic material in Fig. 1 and col. 3, line 21 to col. 5, line 58.

With regard to claims 3 and 24, Lipp et al. '541 discloses the first filter elements (72) (the filter elements having the electrical terminals (22)) being arranged in distributed fashion in the filter element group in Fig. 1. Since the first filter elements are located on opposite ends of the filter element group and are not in direct contact with one another, the first filter elements are seen as being arranged in distributed fashion.

With regard to claim 5, Lipp et al. '541 discloses the second filter elements (74,76) (the filter elements not having electrical terminals) also being made of electrically conductive ceramic material in Fig. 1 and col. 3, lines 21-42.

With regard to claim 6, Lipp et al. '541 discloses the second filter elements (74) resting against the first filter elements (72) being in electrically conductive contact with the first filter elements (72) in Fig. 1.

With regard to claim 9, Lipp et al. '541 discloses contact layers (73,75) being arranged between the filter elements (72,74,76) in Fig. 1 and col. 4, lines 40-52.

With regard to claims 10 and 11, Lipp et al. '541 discloses the contact layers (75) being made of the same electrically conductive ceramic base material as the filter elements in Fig. 1 and col. 4, lines 21-39. The filter elements (72,74) are seen as being secured together using a contact layer (75) formed from a slurry of water and the electrically conductive ceramic material used to form the filter elements.

With regard to claims 12 and 25, Lipp et al. '541 discloses the electrical conductivity of the contact layers (73) being lower than that of the first filter elements in Fig. 1 and col. 4, lines 40-52.

With regard to claim 13, Lipp et al. '541 discloses the contact layers (75) directly contacting the filter elements (72,76) in Fig. 1.

With regard to claims 14 and 26, Lipp et al. '541 discloses the contact layers (73) being configured as separate layers with no material connection to the filter elements in Fig. 1 and col. 4, lines 40-52. Since the contact layers (73) are formed as separate members which are inserted between the filter elements, the contact layers (73) are not seen as being materially connected (such as by an adhesive bond) to the filter elements.

With regard to claim 15, Lipp et al. '541 discloses the thermal conductivity of the contact layers being of the same order of magnitude as that of the first and second filter elements in col. 3, line 21 to col. 4, line 52. Since the contact layers and the first and second filter elements are all formed from ceramic materials, the contact layers will inherently have a thermal conductivity of the same order of magnitude as that of the first and second filter elements.

With regard to claims 16 and 27, Lipp et al. '541 discloses the filter elements (72,74,76) comprising, next to and alternating with one another, inflow conduits and outflow conduits that are separated by porous, filtrationally effective longitudinal walls, the inflow conduits being open on the inflow side and closed on the outflow side, and

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the outflow conduits being closed on the inflow side and open on the outflow side in Fig. 1 and col. 3, line 67 to col. 4, line 9.

With regard to claim 17, Lipp et al. '541 discloses the inflow and outflow conduits having a square cross section in Fig. 1 and col. 2, lines 61-68.

With regard to claim 22, Lipp et al. '541 discloses the filter elements (72,74,76) having substantially the same expansion coefficients over the operating temperature range in col. 3, lines 23-42. Since Lipp et al. '541 discloses the first (72) and second (74,76) filter elements being formed from the same ceramic material, the filter elements will all have the same thermal expansion coefficient. Additionally, it is further noted that since the contact layers are also formed from a ceramic material, the contact layers will have substantially the same expansion coefficients as the filter elements over the operating temperature range.

12. Claims 1, 3, 5, 6, 8, 16-18, 19-22, 24, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Bagley et al.

With regard to claim 1, Bagley et al. discloses a filter device having filter elements (3) made of ceramic material which are combined into a filter element group (1) in which the filter elements lie side by side next to one another and can be flowed through in parallel, wherein only some of the filter elements (the filter element in

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contact with the electrical terminals 22) of the filter element group have electrical terminals (22) for connection with an electrical energy source, and at least those filter elements are made of electrically conductive ceramic material in Fig. 1 and col. 4, line 44 to col. 8, line 62.

With regard to claims 3 and 24, Bagley et al. discloses the first filter elements (the filter elements having the electrical terminals (22)) being arranged in distributed fashion in the filter element group in Fig. 1.

With regard to claim 5, Bagley et al. discloses the second filter elements (the filter elements not having electrical terminals) also being made of electrically conductive ceramic material in Fig. 1 and col. 4, line 44 to col. 8, line 62.

With regard to claim 6, Bagley et al. discloses the second filter elements resting against the first filter elements being in electrically conductive contact with the first filter elements (72) in Fig. 1.

With regard to claim 8, Bagley et al. discloses the thermal conductivity of the second filter elements being greater than or less than that of the first filter elements in col. 8, lines 21-37. Since the plugs (8,11) of the first filter element are formed differently than the plugs (8,11) of the second filter elements, the second filter elements will

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inherently have a thermal conductivity greater than or less than that of the first filter elements.

With regard to claims 16 and 27, Bagley et al. discloses the filter elements (3) comprising, next to and alternating with one another, inflow conduits and outflow conduits that are separated by porous, filtrationally effective longitudinal walls (2), the inflow conduits being open on the inflow side and closed on the outflow side, and the outflow conduits being closed on the inflow side and open on the outflow side in Fig. 1 and col. 4, lines 44-63.

With regard to claim 17, Bagley et al. discloses the inflow and outflow conduits having a square cross section in Fig. 1 and col. 6, lines 18-20.

With regard to claim 18, Bagley et al. discloses a similar device having similar filter elements (1) wherein the outer wall (6) of the filter elements are of gas-tight configuration in Figs. 1 and 2 and col. 4, lines 44-63. As shown in Fig. 2, the outer wall (6) of the filter element is of gas-tight configuration since no airflow passes through the outer wall (6).

With regard to claim 20, Bagley et al. discloses a similar filter device wherein a similar filter element group (1) is surrounded by a housing (26,27) having a gas inlet and gas outlet in Figs. 1 and 3 and col. 6, line 60 to col. 7, line 10.

With regard to claim 21, Bagley et al. discloses multiple filter element groups being present and each filter group (1) being surrounded by a separate housing in Figs. 1 and 3 and col. 3, lines 53-68

With regard to claim 22, Bagley et al. discloses the filter elements (3) having substantially the same expansion coefficients over the operating temperature range in col. 4, line 44 to col. 5, line 2. Since Bagley et al. discloses the first and second filter elements being formed from the same ceramic material, the filter elements will all have the same thermal expansion coefficient.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lipp et al. '541 as applied to claim 1 above, and further in view of Bagley et al.

With regard to claim 18, Lipp et al. '541 discloses the outer walls of the filter elements being of particle-tight configuration in Fig. 1 and col. 3, line 54 to col. 4, line 9.

Lipp et al. '541 does not explicitly disclose the outer walls of the filter elements being of gas-tight configuration.

Bagley et al. discloses a similar device having similar filter elements (1) wherein the outer wall (6) of the filter elements are of gas-tight configuration in Figs. 1 and 2 and col. 4, lines 44-63. As shown in Fig. 2, the outer wall (6) of the filter element is of gas-tight configuration since no airflow passes through the outer wall (6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the gas-tight outer wall of Bagley et al. into the filter device of Lipp et al. '541 to ensure that all of the airflow passes completely through the filter device, as suggested by Bagley et al. in Fig. 2.

With regard to claim 19, Lipp et al. '541 discloses the outer walls of the filter elements (72,74,76) having a rectangular cross section in Fig. 1.

With regard to claim 20, Lipp et al. '541 does not explicitly disclose the filter element group being surrounded by a housing having a gas inlet and gas outlet.

Bagley et al. discloses a similar filter device wherein a similar filter element group (1) is surrounded by a housing (26,27) having a gas inlet and gas outlet in Figs. 1 and 3 and col. 6, line 60 to col. 7, line 10.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the housing having a gas inlet and gas outlet into the filter device of Lipp et al. '541 to provide a support structure for the filter device and to provide means for connecting the filter device to the exhaust line of an internal combustion engine, as suggested by Bagley et al. in Fig. 3 and col. 6, line 60 to col. 7, line 10.

With regard to claim 21, Lipp et al. '541 discloses multiple filter element groups being present in col. 5, lines 12-21.

Lipp et al. '541 does not disclose each filter group being surrounded by a separate housing.

Bagley et al. discloses each filter group (1) being surrounded by a separate housing in Figs. 1 and 3 and col. 6, line 60 to col. 7, line 10.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the separate housings of Bagley et al. into the filter device of Lipp et al. '541 to allow each filter group to be operated independently, as suggested by Bagley et al. in col. 3, lines 53-68 and Lipp et al. in col. 5, lines 12-21.

Allowable Subject Matter

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15. Claims 2, 4, and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. Claims 2, 4, and 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

17. Claim 23 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

18. Claim 23 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

19. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 2 and 23, the prior art made of record does not teach or fairly suggest the filter device of claim 1 wherein the filter elements having the electrical terminals are arranged at the center of the filter element group.

With regard to claim 4, the prior art made of record does not teach or fairly suggest the filter device of claim 1 wherein the filter elements having the electrical terminals are surrounded by filter elements that do not have electrical terminals.

With regard to claim 7, the prior art made of record does not teach or fairly suggest the filter device of claim 1 wherein the filter elements that do not have electrical terminals are made of an electrically nonconductive ceramic material.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Dasgupta, Lipp '586, Bykowski, Breuer et al., Henkel, Abe et al., and Kondo et al. references disclose similar filter devices.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (703) 308-6240. The examiner can normally be reached on Tuesday - Friday (7:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Simmons can be reached on (703) 308-1972. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jason M. Greene
Examiner
Art Unit 1724



jmg
February 20, 2003



David A. Simmons
Supervisory Patent Examiner
Technology Center 1700